Indian and Northern Affairs Canada
Affaires indiennes et du Nord Canada

NOGAP BULLETIN
1987/88

ANNUAL REVIEW OF NOGAP PROJECTS

Northern Oil and Gas Action Program

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ANNUAL REVIEW OF NOGAP PROJECTS

NOGAP SECRETARIAT
CONSTITUTIONAL DEVELOPMENT AND STRATEGIC PLANNING BRANCH
NORTHERN AFFAIRS PROGRAM
INDIAN AND NORTHERN AFFAIRS CANADA
MAY 1987

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NOGAP Bulletin

ANNUAL REVIEW OF NOGAP PROJECTS: 1987/88

I. THE PROGRAM AND ITS ADMINISTRATION

This report is the third annual review of Northern Oil and Gas Action Program (NOGAP) projects, updating the second bulletin issued in May 1986. It provides a brief description of NOGAP-funded projects to be started or continued during 1987/88.[1]

One of NOGAP's operating objectives is to make its activities widely known. This volume is issued in support of this objective. It was compiled by the NOGAP Secretariat, Indian and Northern Affairs Canada with the assistance of Helen Ludlow, Federal-Territorial Relations Division, Northern Affairs Program, DIAND.

THE PROGRAM

NOGAP is a seven-year (1984/85 to 1990/91) research and planning program to advance the state of federal and territorial government preparedness for major hydrocarbon development north of 60°.

The program is derived from the first facet of the federal government's dual-faceted northern hydrocarbon development strategy; that is,

> implementing a federal/territorial coordinated and accelerated socio-economic, environmental and technical research and planning program to support government regulatory, policy and program responsibilities and to achieve a state of preparedness for northern hydrocarbon production.

Government preparedness for northern hydrocarbon production refers generally to acquiring the knowledge and analytical capability to make appropriate decisions concerning major northern development proposals. Preparedness requires the ability to evaluate environmental impacts and mitigate adverse ones; to develop guidelines and techniques to minimize hazards; to plan for additional public services and infrastructure, and to implement means of enhancing northern opportunities and benefits from hydrocarbon development.

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[1] Two bibliographies of work published from the beginning of NOGAP in 1984 to Spring 1987 have been prepared (Volume I, August 1986 and Volume II, March 1987) and sent to those receiving this report.

NOGAP was approved by the federal Cabinet in February 1984 as a seven-year program (1984-85 to 1990-91), with initial funding approved to March 31, 1988. Following the major expenditure reduction by the federal government in November 1984, funding was reduced by 43% to $11 million in 1985-86 and in 1986-87, and $9.6 million in 1987-88 (in $1984-85).

NOGAP funds may be used either to accelerate work on current projects or to undertake new activities which existing ("A"-base) resources cannot accommodate. Projects are proposed by NOGAP participants to support their needs for accelerated research and planning relevant to northern hydrocarbon development. They are undertaken within the context of generic development scenarios that have been adopted for the program.

NOGAP was completely replanned in 1985 because of the major budget reduction. Two factors played a major role in reorienting the program. First, the recommendations contained in the 1984 report of the Beaufort Environmental Assessment and Review Process Panel were considered in redefining projects. Secondly, the generic development scenarios on which NOGAP work is based were priorized and modified. These scenarios relate both to production regions (the Beaufort Sea and the Arctic Islands) and to transportation modes (pipeline and tanker).

Work has been focussed, in declining order of priority, on (1) Beaufort Sea-Mackenzie Delta oil and gas development, involving on-shore and off-shore production, both oil and gas pipelines up the Mackenzie Valley and the use of seasonal or year-round ice-strengthened tanker transportation of oil eastward and/or westward, and (2) other oil and gas developments north of 60°.

NOGAP was originally planned as a seven-year program because it was expected that major hydrocarbon development would occur north of 60° by 1991. As the project descriptions in part II indicate, many of the projects are intended to take seven years because of the nature of the issues being researched or they establish baseline information required for the subsequent examination of issues.

The decline in international oil prices since late 1985, which has extended the timeframe for hydrocarbon development in the north, will have the beneficial effect of enabling planned NOGAP research to be completed before development begins. The program is reviewed annually, however, and some projects intended to be undertaken in 1987/88 been delayed or revised.

NOGAP PARTICIPANTS

Seven federal departments are funded under NOGAP:

1) Agriculture Canada - Canadian Forestry Service;

2) Energy, Mines and Resources Canada - Geological Survey of Canada;

3) Environment Canada - Conservation and Protection, Atmospheric Environment Service;

4) Fisheries and Oceans - Pacific and Freshwater Fisheries, Science;

5) Indian and Northern Affairs Canada - Natural Resources and Economic Development;

6) Canadian Museum of Civilization - Archaeological Survey of Canada; and

7) Transport Canada - Canadian Coast Guard.*

The territorial governments also receive NOGAP funds. In Yukon, the Bureau of Statistics and the Departments of Education, Economic Development: Mines and Small Business, Renewable Resources, and Tourism participate.

The Government of the Northwest Territories' participation involves the Energy, Mines and Resources Secretariat and the Departments of Culture and Communications, Economic Development and Tourism, Health, Justice and Public Services, Municipal and Community Affairs, Renewable Resources, and Social Services.

A small NOGAP Secretariat in the Constitutional Development and Strategic Planning Branch, Indian and Northern Affairs Canada provides overall management and coordination of the program among the nine participants.

NOGAP CONTRACT WORK

The majority of NOGAP projects are contracted out in whole or part. For federal departments, contracting out is usually done through requests for proposals (RFPs), which are managed by Supply and Services Canada (SSC). These RFPs are sent to potential bidders identified by both the Federal Department and the computerized sourcing system within SSC. Persons interested in obtaining further information about SSC contracting policies and procedures should contact Larraine Pedersen, Science and Professional Services Directorate, Supply and Services Canada, Ottawa, Ontario, K1A 0S5, (819) 997-7397.

* In 1985/86 Transport Canada instituted an alternative system for funding its NOGAP projects. It remains part of the current NOGAP program in all other aspects.

Individuals and firms should consult with the following appropriate SSC managers for their NOGAP research areas of interest:

Agriculture Canada	Jack Boyle	997-6379
Energy, Mines & Resources	Al Toren	997-5286
Environment Canada	Stephe Cooper	997-7354
Fisheries & Oceans	Fabian McDougall	997-7348
Indian Affairs Canada	Larraine Pedersen	997-7397
Canadian Museum of Civilization	Larraine Pedersen	997-7397
Transport Canada	Don Misener	997-6027

For the territorial governments, individuals or firms interested in obtaining further information on contracts and contracting procedures should contact the persons named in the final two sections of this paper, which describe the projects of the Government of Yukon and the Government of the Northwest Territories.

Funding for NOGAP projects has been allocated to the end of the specific project or 1987-88, whichever comes first. Consequently, contracts have already been let in many cases. Information on contract status may be obtained from the individuals listed in part II.

FOR FURTHER INFORMATION

1. For general information on the entire program, contact: Gregory Thompson, A/Senior Planning Coordinator, NOGAP Secretariat, Constitutional Development and Strategic Planning Branch, Indian and Northern Affairs Canada, Les Terrasses de la Chaudière, Ottawa, Ontario, K1A 0H4, (819) 994-6452.

2. For general information on the program of individual participants, contact the relevant NOGAP Coordinator, as follows:

   Indian and Northern Affairs Canada: Donna Stewart, Environmental Studies Coordinator, Natural Resources and Economic Development Branch, Indian and Northern Affairs Canada, Les Terrasses de la Chaudiere, Ottawa, Ontario, K1A 0H4, (819) 997-9622.

   Fisheries and Oceans: Ken Yuen, Chief, Oceanographic Sciences Directorate, Fisheries and Oceans, 200 Kent Street, Ottawa, Ontario, K1A 0E6, (613) 990-0311.

   Environment Canada: W.D. Brakel, Economic Advisor, Western and Northern Region, Environment Canada, Twin Atria #2, 4999 - 98th Ave, Edmonton, Alberta, T6B 2X3, (403) 468-8062.

   Energy, Mines and Resources Canada: Bryan Cook, Office of Energy Research and Development, Energy, Mines and Resources Canada, 580 Booth Street, Ottawa, Ontario, K1A 0E4, (613) 995-9351 (ext. 214).

   Transport Canada: Ian Marr, Coast Guard Northern (DCGN/T), Transport Canada, Ottawa, Ontario, K1A 0N7, (613) 995-4771.

Canadian Museum of Civilization: Jacques Cinq-Mars, Chairman, Rescue Archaeology Program, Archaeological Survey of Canada, Canadian Museum of Civilization, Ottawa, Ontario, K1A 0M8, (819) 953-4109.

Government of the Northwest Territories: Margaret McGee, NOGAP Secretariat, Energy, Mines and Resources Secretariat, Box 1320, Yellowknife, NWT, X1A 2L9, (403) 920-8944.

Government of Yukon: Bruce Demchuk, NOGAP/EDA Coordinator, Department of Economic Development: Mines and Small Business, Box 2703, Whitehorse, Yukon, Y1A 2C6, (403) 667-3078.

3. For information on specific projects, see the contacts in part II.

II. NOGAP PROJECTS BY PARTICIPANT

PROJECT INFORMATION

Each of the research and planning projects funded by NOGAP during 1987-88 is summarized in the following sections by:

- department and territorial government/department,
- title and NOGAP project number,
- the intended length of the entire project (in brackets),
- whether the work will be done in-house or contracted out,
- objectives,
- titles of subprojects being undertaken during 1987/88, and
- contacts, including those for individual projects, where applicable.

INDIAN AND NORTHERN AFFAIRS CANADA

1. **GRANULAR RESOURCES INVENTORY AND MANAGEMENT PROGRAM (A.4)** (1984/85-1988/89); In-house and contract

Objectives: (1) To ensure that adequate geotechnical and hydrographic information is available to support the Department's granular resources management program related to Hydrocarbon Development; (2) To provide detailed information on the location, type, quantities and qualities of each borrow source in the Beaufort Sea Region as is required to support conservation and utilization strategies and policies being developed under the Territorial Quarrying Regulations, Public Lands Grants Act and Regulations, and the proposed Territorial and Public Lands Pits and Quarries Regulations.

Contact: Chris Cuddy, Northern Renewable Resources Directorate, Land Management Division, INAC, Ottawa, Ontario, K1A 0H4, (819) 997-0663.

Subprojects:

A.4-9 Suitability of Beaufort Sea Region Granular Resources for Concrete Aggregates (1985/86 - 1988/89)

A.4-11 Computer Methodology for Identifying Seabed Anomalies (1985/86 - 1987/88)

A.4-12 Beaufort Region Quarry Rock Study (1986/87 - 1987/88)

A.4-15 Guidelines for Investigations of Offshore Granular Resources (1986/87 - 1987/88)

A.4-18 Granular resources Management Strategy for the South Slave Region (1986/87 - 1987/88)

A.4-19 Beaufort Region Bathymetric, Geophysical and Geotechnical Data Inventory and Mapping (1987/88)

A.4-20 Synthesis and Interpretation of Bathymetric, Geophysical, and Geotechnical Data from the Isserk Borrow Block, southern Akpak Plateau, Beaufort Sea. (1987/88)

A.4-21 Synthesis and Interpretation of Bathymetric, Geophysical, and Geotechnical Data from the Erksak Borrow Block southern Tingmiark Plain, Beaufort Sea. (1987/88)

A.4-22 Detailed Analysis of Bathymetric Data for Selected Potential Granular Resource Deposits, Beaufort Sea. (1987/88)

A.4-23 Preliminary Assessment of Offshore Granular Resource Potential, near Tuktoyaktuk Peninsula, Beaufort Sea. (1987/88)

2. **PHYSICAL ENVIRONMENT: PROCESS AND IMPACTS (A.5) (1984/85-1990/91); Contract**

Objectives: (1) To identify and address those information deficiencies critical to the understanding of physical processes and their interactions with proposed oil and gas industrial developments. (2) To provide detailed advice on the most technically and environmentally acceptable siting of shorebased and other terrestrial facilities, including support bases, harbour structures, production systems and pipelines. (3) To ensure effective government regulation of industrial development (oil and gas) by carrying out appropriate geotechnical and hydrological studies.

Contact: David Livingstone, Marine Environment Division, Northern Environment Directorate, INAC, Ottawa, Ontario, K1A 0H4, (819) 994-7454.

Subprojects:

A.5-12 Investigation of Waste Drilling Fluid Containment Sites in the Mackenzie River Valley, N.W.T. (1987/88)

A.5-13 Guidelines for Dicants of Waste Drilling Fluids in Sumps (1987/88)

A.5-14 Environmental Implications of Development in the King Point Region (Onshore) (1987/88)

3. **OFFSHORE ENVIRONMENTAL ECOSYSTEMS MONITORING (BEMP) (A.7) (1984/85-1990/91); Contract**

Objectives: (1) To provide INAC with a comprehensive planning and review program for environmental research and monitoring to accompany offshore industrial activities in the Beaufort. (2) To provide a functional audit, which continuously evaluates whether research and monitoring proposed, and results obtained are addressing the most useful variables for detecting and anticipating environmental impacts. (3) To provide the research related to monitoring and essential for progressive development of the Beaufort Monitoring Program and necessary for the iterative evaluation of the effectiveness of monitoring and mitigative measures.

Contact: David Stone, Chief, Marine Environment Division, Northern Environment Directorate, INAC, Ottawa, Ontario, K1A 0H4, (819) 997-0045.

4. **DISTURBANCE OF MARINE MAMMALS BY INDUSTRIAL ACTIVITY (A.8) (1984/85-1990/91); Contract**

Objectives: (1) To assess the influence of Arctic marine shipping and offshore hydrocarbon development on marine mammals of value to native harvesting and/or of international significance. (2) To be able to

respond to Inuit concerns about the fate of marine mammals, and the impact on traditional renewable resource harvesting. (3) To provide information to determine the suitability of various transport modes, shipping routes and timing of offshore industrial activities.

Contact: Rick Hurst, Regional Manager, Environment and Conservation, Indian Affairs Program, INAC, Box 1500, Yellowknife, N.W.T. X1A 2R3 (403) 920-8233.

Subprojects:

A.8-8 Compilation of Industrial Activities in the Beaufort Sea (1985/86 - 1990/91)

A.8-11 Continuing Studies of the Eastern Arctic Bowhead Whale - Isabella Bay, Baffin Island (1986/87 - 1987/88)

A.8-12 Bowhead Whale Distribution in the Beaufort Sea (1986/87 - 1987/88)

5. CONTAMINANTS IN THE AQUATIC ENVIRONMENT AND QUALITY OF FOOD SPECIES (A.12) (1985/86-1990/91); Contract

Objective: To evaluate the impact of oil and gas activities on the quality of the aquatic environment and on those species which are of importance to the survival of higher trophic levels harvested by northerners, by: (a) increasing the data base required to assess the effects of hydrocarbon resource developments and of natural oil seeps on the environment and in particular on the traditional food sources and lifestyle of the northern natives; (b) investigating the extent and occurrence of abnormalities in harvested food species in areas which may be affected by hydrocarbon development; (c) integrating knowledge of known hydrocarbon-related effects on aquatic species and evaluating the potential socio-economic impact if traditionally harvested resources are negatively affected by hydrocarbons.

Contact: D. Robinson, Terrestrial Environment Division, Northern Environment Directorate, INAC, Ottawa, Ontario, K1A 0H4, (819) 997-7456.

Subprojects:

A.12-5 An Investigation of Fish Quality and Physiological Condition in the Lower Mackenzie River, NWT (1985/86 - 1987/88). (Joint project with DFO as lead department.)

6. **IMPACTS OF OIL AND GAS-RELATED ACTIVITIES ON CARIBOU** (A.13, See also Projects C.9 and G.16) (1984/85-1990/91); Contract

Objective This project is the DIAND component of the inter-agency NOGAP caribou project which includes DOE Project C9 and YTG Project G.16. DIAND's objectives initially identified are: (1) To evaluate caribou range utilization in the vicinity of major linear developments and to monitor the effects of increased levels of hydrocarbon development and other related activities on caribou herds in the N.W.T. and Yukon. (2) In particular, to document the reaction of caribou to vehicle traffic, aircraft and other human activities in the vicinity of hydrocarbon development and other related activities on caribou herds in the N.W.T. and Yukon.

Contact: Donna Stewart, Northern Environment Directorate, INAC, Ottawa, Ontario, K1A 0H4, (819) 997-9622.

Subprojects:

A.13-4 Body Condition as an Indicator of Porcupine Caribou Herd Condition (1986/87 - 1987/88)

A.13-5 Computer Modelling of Porcupine Caribou Ecology (1987/88 - 1990/91)

7. **SURFACE AND SUBSURFACE DISTURBANCES INDUCED BY OIL AND GAS ACTIVITIES** (A.17) (1984/85-1990/91); Contract

Objectives: (1) To improve understanding of changes in the nature of surface and subsurface soils related to construction and transportation activities associated with oil and gas developments in order to determine the best operating practices and techniques for rehabilitation of disturbed areas. (2) To improve understanding of the changes in thermal regimes induced by construction in permafrost-rich terrain, including the altered stability of frozen oil material and their overlying structures.

Contact: Kaye MacInnes, Land Resources Division, INAC, P.O. Box 1500, Yellowknife, N.T, X1A 2R3, (403) 920-8152.

Subprojects:

A.17-2 Ground Thermal Regimes in the Vicinity of the Norman Wells Pipeline (1984/85 - 1990/91). (Joint INAC, EMR and IPL long-term research and monitoring program on the permafrost and terrain impacts of the Norman Wells pipeline. INAC is the lead agency.)

8. **BEAUFORT SEA SHOREBASE MONITORING PROGRAM** (A.20) (1984/85-1990/91); Contract

Objectives: (1) To provide the scientific research necessary to design novel techniques for treatment or disposal of petroleum hydrocarbons and related contaminants. (2) To assist in the development of departmental offshore policies that will dictate the establishment of regulations under the Arctic Waters Pollution Prevention Act, and the development of environmental operating conditions.

Contact: Gordon Stewart, Water Resources Division, INAC, P.O. Box 1500, Yellowknife, NWT, X1A 2R3, (403) 920-8223.

Subprojects:

A.20-14 Beaufort Sea Shore Monitoring Program (1987/88)

A.20-15 Potential for the Generation and Release of Carcenogenic PAH and Oil Based Muds to the Marine Environment as a Result of In-situ Pyrolysis (1987/88)

9. **ONSHORE ENVIRONMENTAL MONITORING AND RESEARCH PROGRAM (MEMP)** (A.21) (1984/85-1990/91); In-house and contract

Objectives: (1) To develop, on an iterative basis, an environmental monitoring and research program designed to address the potential environmental impacts associated with the production and onshore transportation of hydrocarbons from the Mackenzie Delta and River area. Included in this consideration is the increased exploration and onshore facilities associated with developments. (2) To provide for the continued evaluation of the research information necessary for the progressive development of the Mackenzie Environmental Monitoring Program. Included in this objective will be the development of a Mackenzie Delta and River environmental data base using the Northern Environment Directorate computer system.

Contact: Fred McFarland, A/Chief, Terrestrial Environment Division, Northern Environment Directorate, INAC, Ottawa, Ontario, K1A 0H4, (819) 997-9621.

FISHERIES AND OCEANS

For further information, contact (except as noted below): Ken Yuen, Chief, Oceanographic Sciences Directorate, Fisheries and Oceans, Ottawa, Ontario, K1A 0E6, (613) 990-0311. Contacts for some individual projects are noted below.

Information on Fisheries projects may also be obtained from Gordon Koshinsky, Freshwater Institute, DFO, 501 University Crescent, Winnipeg, Manitoba, R3T 2N6, (204) 949-5062.

1. **EFFECTS OF VESSEL NOISE AND TRAFFIC ON ARCTIC MARINE MAMMALS** (B.1) (1984/85-1990/91); In-house and contract

   Objectives: (1) To develop expertise and ongoing capability within DFO in respect to Arctic marine mammal bioacoustics and behaviour. (2) To identify and evaluate the effects of noise generated by ice-breaking vessels on Arctic marine mammals. (3) To identify and evaluate the effects of heavy-vessel traffic on Arctic marine mammals and their sea-ice habitats. (4) To document the distribution, abundance and movements of key Arctic marine mammals in potentially impacted habitats.

   Contact: S. Cosens, Research Scientist, Freshwater and Arctic Research Directorate, DFO, 501 University Crescent, Winnipeg, Man., R3T 2N6, (204) 949-8838.

   Subprojects:

   B.1-1 Beaufort Sea Inshore/Offshore Beluga Surveys (1984/85 - 1987/88)

   B.1-2 Ringed Seal Behaviour and Ecology (1984/85 - 1987/88)

   B.1-3 Marine Mammal Bioacoustics and Behaviour (1985/86 - 1987/88)

2. **CRITICAL ESTUARINE AND MARINE HABITATS OF THE CANADIAN ARCTIC COASTAL SHELF** (B.2) (1984/85-1988/89); In-house and contract

   Objectives: (1) To identify representation estuarine and marine habitats of significance to fish on the Beaufort Shelf, and to Arctic cod in the Northwest Passage. (2) To characterize these habitats in terms of biotic community composition and abiotic parameters. (3) To improve our understanding of ecosystem processes and pathways in these habitats in terms appropriate to backgrounding the assessment of sensitivity and vulnerability of estuarine and marine fish and their habitats to hydrocarbon production and transportation from the Beaufort Shelf. (4) To compile and appraise existing Arctic estuarine and marine data on physics, chemistry and selected biological parameters.

Contact: Michael J. Lawrence, Resource Allocation and Habitat Management, DFO, 501 University Crescent, Winnipeg, Man., R3T 2N6, (204) 949-5222.

Subprojects:

B.2-1 Beaufort Shelf Fish Habitat Research (1984/85 - 1987/88)

B.2-2 Fisheries Research Vessel Operation, Beaufort Sea (1984/85 - 1987/88)

B.2-3 Nearshore Benthic Monitoring, Beaufort Shelf (1984/85 - 1987/88)

B.2-4 Yukon North Slope Fish Habitat Assessment (1984/85 - 1987/88)

B.2-5 Arctic Cod Distribution, Abundance and Vulnerability to Perturbation (1984/85 - 1987/88)

B.2-6 Arctic Data Compilation and Appraisal Program (1984/85 - 1987/88)

3. CRITICAL WESTERN ARCTIC FRESHWATER HABITATS (B.3) (1984/85-1988/89); In-house and contract

Objectives: In general, to enhance the Department's capability to provide effective, timely, and credible scientific advice in respect to potential perturbation of critical freshwater fish habitats in the Western Arctic (Mackenzie Delta, Tuktoyaktuk Peninsula, lower Mackenzie River and environs) in relation to hydrocarbon development, production, and transportation. This will be achieved, with NOGAP support, by pursuing the following objectives (this Project): (a) to locate spawning grounds, overwintering sites, and migration and dispersal corridors; (b) to determine the presence and the geographical limits of fish genetic stocks; (c) to determine the identity, nature and specific contributions of freshwater habitats to fish productivity; (d) to determine the tolerance of young migrating fish to salinity. Broad whitefish (Coregonus nasus) will be used as the indicator species and the focus of research.

Contact: Dennis G. Wright, Coordinator, Environmental Affairs, DFO, 501 University Crescent, Winnipeg, Manitoba, R3T 2N6 (204) 949-5204.

Subprojects:

B.3-1 Spawning, Migration, Overwintering and Dispersal of Broad Whitefish (1984/85 - 1987/88)

B.3-2 Broad Whitefish Stock Separation (1984/85 - 1987/88)

B.3-3 Chemical and Biological Characterization of Broad Whitefish Habitats within the Mackenzie Delta, Nearshore Beaufort Sea and Tuktoyaktuk Peninsula (Whitefish Habitat Ecology) (1984/85 - 1987/88)

B.3-4 Salinity Preference/Tolerance of Larval and Juvenile Broad Whitefish, Including Effects of Modifying Factors (Age, Temperature, Oil Acclimation) (1985/86 - 1987/88)

4. **BEAUFORT SEA OCEANOGRAPHY** (B.6) (1984/85-1990/91); In-house and contract

Objective: To understand natural hydrocarbon distributions and primary productivity in the oil exploration zone of the Mackenzie estuaria (shelf).

Contact: R.W. Macdonald, Institute of Ocean Sciences, DFO, Sidney, B.C., V8L 4B2, (604) 356-6409.

5. **OCEANOGRAPHIC DATA MANAGEMENT** (B.7) (1984/85-1987/88); In-house and Contract

Objective: To develop adequate management of oceanographic data, including processing, validation, quality control, storage, retrieval and generation of data products/analyses to meet client demands.

Contact: P.A. Bolduc, Marine Environmental Services Branch, DFO, Ottawa, Ontario, K1A 0E6, (613) 990-0231.

6. **BEAUFORT SEA WAVES** (B.8) (1984/85-1989/90); In-house

Objective: To accelerate the acquisition and development of wave climate data and knowledge of the Beaufort Sea.

Contact: Dr. J.R. Wilson, Marine Environmental Services Branch, DFO, Ottawa, Ontario, K1A 0E6, (613) 990-0264.

ENVIRONMENT CANADA

Environmental Protection Service

1. **CRITERIA FOR THE CONTROL AND MONITORING OF PETROLEUM DEVELOPMENT IMPACTS ON THE MACKENZIE RIVER** (C.2) (1984/85-1987/88); Contract

   Objectives: (1) To develop criteria for protecting valued aquatic resources from the impacts of contaminants released from petroleum developments. (2) To produce recommendations on the most effective methods for monitoring the impacts on the Mackenzie River of contaminants released from petroleum developments.

   Contact: David Sutherland, Senior Water Pollution Biologist, Environmental Protection Service, NWT District Office, Environment Canada, P.O. Box 370, Yellowknife, NWT, X1A 2N3, (403) 873-3456.

   Subproject:

   C.2-1 Baseline Monitoring of Petroleum Hydrocarbons in the Mackenzie River (1984/85 - 1987/88); In-house

   Contact: Brian Olding, Inland Waters Directorate, Environment Canada, P.O. Box 2970, Yellowknife, NWT, X1A 2R2, (403) 920-8516.

2. **POINT SOURCE IMPACT MONITORING TECHNIQUES - MARINE BENTHIC ENVIRONMENT** (C.3) (1984/85-1987/88); Contract

   Objective: To test monitoring strategies and parameters recommended in the Arctic Marine Methods Guide (bioaccumulation, toxicity and benthic community structure) to determine their effectiveness and whether they should be included in regulatory monitoring guidelines.

   Contact: Russel Shearer, Senior Environmental Biologist, Environmental Protection Service, NWT District Office, Environment Canada, P.O. Box 370, Yellowknife, NWT, X1A 2N3, (403) 873-3456.

3. **OCEAN DUMP SITE DESIGNATION FOR SOLID AND CONTAMINATED WASTES** (C.4) (1984/85-1987/88); Contract

   Objectives: (1) To evaluate criteria for designating an ocean dump site or sites in the Beaufort Sea for solid and contaminated wastes from hydrocarbon exploration and production. (2) To screen potential sites and identify information gaps. (3) To make recommendations to the Regional Ocean Dumping Advisory Committee on dump site designation and dumping criteria/guidelines. (4) To collect baseline information at a designated site, to design a follow-up monitoring program, and to initiate a pilot scale dumping program in cooperation with industry.

Contact: Russel Shearer, Senior Environmental Biologist, Environmental Protection Service, NWT District Office, Environment Canada, P.O. Box 370, Yellowknife, NWT, X1A 2N3, (403) 873-3456.

4. **BEAUFORT ATLAS: BACKGROUND INFORMATION FOR IMPLEMENTING MARINE OILSPILL COUNTERMEASURES** (C.6) (1984/85-1987/88); Contract

Objective: To produce an atlas of background environmental data and information pertinent to the implementation of marine oil spill countermeasures in the Beaufort Sea.

Contact: R.S. Howarth, Manager, Environmental Engineering, Environmental Protection Service, NWT District Office, Environment Canada, P.O. Box 370, Yellowknife, NWT, X1A 2N3, (403) 873-3456.

Subproject:

C.6-1 Behaviour of Oil in Icy Waters (1985/86 - 1987/88); Contract

Contact: M.F. Fingas, Head, Chemistry and Physics Section, Environmental Emergencies Technology Division, EPS, Environment Canada, Ottawa, Ontario, K1A 0E7, (613) 998-9622.

Environmental Conservation Service

5. **MIGRATORY BIRD DISTURBANCE, ASSESSMENT AND MANAGEMENT** (C.7) (1984/85-1987/88); In-house and contract

Objectives: (1) To develop guidelines for aircraft and other sources of industrial disturbance that will protect snow geese during susceptible phases of their life cycles. (2) To determine waterfowl use of wetlands and key habitats along potential pipeline routes in the lower Mackenzie Valley and delta. (3) To compile site-specific information for planning, mitigation and monitoring on the distribution and abundance of migratory birds.

Contact: H. Loney Dickson, Canadian Wildlife Service, Environment Canada, Twin Atria #2, 4999 - 98th Avenue, Edmonton, Alberta, T6B 2X3, (403) 420-2525.

Subprojects:

C.7-1 Disturbance Studies of Geese (1984/85 - 1987/88)

C.7-3 Site-Specific Surveys of Habitat, Distribution and Abundance (1984/85 - 1987/88)

C.7-5 Shorebirds of the Outer Mackenzie Delta/Richards Island Area (1985/86-1987/88)

6. PORCUPINE CARIBOU SUMMER RANGE (C.9, A.13, G.16) (1984/85-1990/91); In-house

Objectives (DOE only): (1) To determine Porcupine caribou critical habitat and time periods in relationship to hydrocarbon development in northern Yukon by identifying critical habitats, the significance of spring staging areas for bulls and critical insect relief areas on the summer range. (2) To provide the additional knowledge necessary to accommodate hydrocarbon developments by avoiding or minimizing the effects on caribou. (3) To collate existing and ongoing data into a simulation modelling framework to enable researchers and managers to evaluate the effects of hydrocarbon development on the caribou.

Contact: D. Russell, Canadian Wildlife Service, Environment Canada, 204 Range Road, Whitehorse, Yukon, Y1A 3V1, (403) 668-2285.

7. MACKENZIE DELTA CHANNEL STABILITY (C.11) (1986/87-1987/88); In-house

Objectives: (1) To achieve understanding of the dynamic aspects of channel bathymetry, especially those aspects related to the genesis of exceptionally large scour holes at bend apices of small channels, and unique hole and mound features found within the thalwig of major channels. (2) To investigate the existence of contrasts in channel boundary materials affecting these features.

Contact: Jack Wedel, Inland Waters and Lands, Environment Canada, P.O. Box 2970, Yellowknife, N.W.T. X1A 2R2 (403) 920-8503.

Atmospheric Environment Service

8. BEAUFORT SEA FORECASTING TECHNIQUES (SEA STATE FORECAST MODEL) (C.16) (1984/85-1987/88); Contract

Objective: To proceed toward a capability for automatically-produced sea state forecasts for supporting Beaufort Sea hydrocarbon development by adapting wind-wave and storm surge forecast models for potential application as operational forecast models in the southern Beaufort Sea.

Contact: A. Bealby, Atmospheric Environment Service, Environment Canada, 4905 Dufferin Street, Downsview, Ontario, M3H 5T4, (416) 667-4814.

9. BEAUFORT SEA SPECIALIZED DATA BASE (C.17) (1984/85-1987/88); In-house

Objectives: (1) To establish automatic weather stations at six sites along the southern shores of the Beaufort Sea and western sections of the Northwest Passage (King Point - 1985, Herschel Island, Pelly Island, Baillie Island and Cape Prince Alfred - 1986 and Passage Point - 1987). (2) To produce a preliminary analysis of data. (3) To

distribute real time meteorological data from all stations on national and/or international teletype circuits to support the provision of weather warnings and routine forecasts for the Beaufort Sea and near-shore exploration area.

Contact: Neil Parker, Atmospheric Environment Service, Environment Canada, Twin Atria #2, 4999 - 98th Avenue, Edmonton, Alberta, T6B 2X3, (403) 420-3143.

10. BEAUFORT WIND CLIMATOLOGIES (C.18) (1984/85-1987/88); In-house and Contract

Objectives: (1) To select appropriate surface wind data set(s) for use in the Beaufort Sea area. (2) To develop a Beaufort wind climatology targeted to offshore hydrocarbon concerns. (3) To develop wind-derived climatologies such as waves, structural icing and wind chill which are dependent on (1).

Subprojects:

C.18-1 Beaufort Wind Intercomparisons (1984/85 - 1987/88)

Contact: J.B. Maxwell, Canadian Climate Centre, Environment Canada, 4905 Dufferin Street, Downsview, Ontario, M3H 5T4, (416) 667-4550.

11. BEAUFORT SEA ATMOSPHERIC DISPERSION CHARACTERISTICS (C.19) (1984/85-1987/88); In-house

Objectives: (1) To develop a data base of atmospheric parameters related to air quality, such as mixing height, stability and ventilation, for environmental assessment application in the Beaufort Region. (2) To develop and evaluate enhanced techniques for air quality impact assessment with specific applicability to pipeline construction and drilling operation in the Beaufort Region. (3) To provide information on the mechanisms of dispersion for environmental assessment application. (4) To produce an analysis of the collected data at the end of each fiscal year.

Subprojects:

C.19-1 Inuvik Tower (1985/86-1987/88)

C.19-4 Arctic Air Quality Model (1987/88)

Contact: Dr. F.H. Fanaki, Air Quality and Inter-Environmental Research Branch, Atmospheric Environment Service, Environment Canada, 4905 Dufferin Street, Downsview, Ontario, M3H 5T4, (416) 667-4786.

ENERGY, MINES AND RESOURCES CANADA

Geological Survey of Canada

For further information, contact: Dr. David Ross, Assistant Director, Atlantic Geoscience Centre, Energy, Mines and Resources Canada, P.O. Box 1006, Dartmouth, Nova Scotia, B2Y 4A2, (902) 426-3448.

1. COASTAL ZONE GEOTECHNICS, BEAUFORT SEA (D.1) (1984/85-1990/91); In-house and contract

Objectives: (1) To map the nearshore bottom materials in Mackenzie Delta and Tuktoyaktuk Peninsula ares. MILESTONE: Conduct seismic/sidescan surveys of nearshore zones, summer/fall 1987. (2) To progress in understanding rates and processes of coastline change. MILESTONE: Conduct coastal morphology and wave/current and sediment measurements at two potential pipeline landfall sites: (a) Mackenzie Delta river mouth, (b) Tuktoyaktuk Peninsula site (Toker Point). (3) To evaluate the role of sea ice in coastal sediment transport processes. MILESTONE: Complete video and photographic survey of coastal zone break-up processes. (4) To map the on-land surficial material and permafrost. MILESTONE: Continued mapping and sampling in Richards Island and Tuktoyaktuk Peninsula areas. (5) To synthesise and publish results of project to date. MILESTONE: Edited group of papers submitted for publication in "Marine Geology".

Contact: Philip R. Hill, Atlantic Geoscience Centre, P.O. Box 1006, Dartmouth, N.S. B2Y 4A2, (902) 426-6048.

Subproject:

D.1-1 Beaufort Sea Coastal Zone Geotechnics: Onshore Materials and Permafrost (1985/86-1990/91)

Objectives: To provide geological and geotechnical information in the terrestrial portion of the Beaufort Sea coastal zone, including information on the surface deposits and landforms; the sub-surface geological materials, including permafrost and ground ice conditions; and active geomorphological processes, so as to assist in the orderly development, siting, design and construction of shore facilities related to the production of hydrocarbons in the Beaufort Sea region.

2. NORTHERN GEOTECHNICAL RESEARCH PROGRAM , ARCTIC ISLAND CHANNEL GEOTECHNICS (D.2) (1984/85-1990/91); In-house, contract

Objectives: (1) To acquire acoustic profiles and sediment samples in the Lougheed-Cameron-Melville-MacKenzie King-King Christian Island region through leads in the permanent sea ice. (2) To acquire acoustic profiles and sediment samples on an opportunity basis in

collaboration with Canadian Hydrographic Service in Norwegian Bay-King Christian Island region as ice conditions permit. (3) To undertake development/acquisition of major new technology for collection of seabed geological data in areas inaccessible due to permanent ice cover. (4) To analyze, interpret and report on results of 1986 field programs. (5) To develop plans for 1988/89 and following years.

Contact: Bruce MacLean, Atlantic Geoscience Centre, Geological Survey of Canada, P.O. Box 1006, Dartmouth, N.S. B2Y 4A2 (902) 426-3703.

TRANSPORT CANADA

Canadian Coast Guard

For further information, contact: Ian Marr, Coast Guard Northern (DCGN/M), Canadian Coast Guard, Transport Canada, Ottawa, Ontario, K1A 0N7, (613) 998-6572.

This year Transport Canada intends to have two projects.

1. IMPROVING AIDS TO NAVIGATION (E.1) 1987/88; Contract

2. FURTHER DEVELOPMENT OF POLLUTION COUNTER MEASURES IN THE NORTH (E.2), 1987/88; Contract

NOTE: In 1985/86 Transport Canada instituted an alternative system for funding its NOGAP projects. It remains part of the current NOGAP program in all other aspects.

CANADIAN MUSEUM OF CIVILIZATION

Archaeological Survey of Canada

For further information, contact: Jacques Cinq-Mars, Archaeological Survey of Canada, Canadian Museum of Civilization, Ottawa, Ontario, K1A 0M8, (819) 953-4109.

1. NORTHERN HYDROCARBON ARCHAEOLOGY: A COORDINATED ATTEMPT AT DEVELOPING AN INTEGRATED RESOURCE MANAGEMENT SYSTEM WITHIN THE NOGAP AREA (F.1) (1984/85-1990/91); In-house

   Objective: To increase multi-levelled data base and expertise required to interpret, evaluate, preserve and protect as efficiently and as rapidly as possible, and in a coordinated fashion, a complex set of very fragile, non-renewable archaeological resources that are known or expected from the anticipated hydrocarbon development area.

AGRICULTURE CANADA

Canadian Forestry Service

1. THERMAL EFFECTS OF SOIL AND VEGETATION DISTURBANCES (C.20) (1984/85-1987/88); Contract

   Objective: To construct and test an empirically-based model that would enable land managers or project planners to predict the short- or long-term environmental consequences of development activities occurring within the open subarctic forest ecosystem (taiga) that typifies the Mackenzie Valley and Delta.

   Contact: S.C. Zoltai, Northern Forest Research Centre, Agriculture Canada, 5320 - 122nd Street, Edmonton, Alberta, T6H 3S5, (403) 435-7304.

GOVERNMENT OF YUKON TERRITORY

For further information, contact (except as noted below): Bruce Demchuk, Economic Policy, Planning and Research Branch, Department of Economic Development: Mines and Small Business, Government of Yukon, Box 2703, Whitehorse, Yukon, Y1A 2C6, (403) 667-3078.

Department of Education (Libraries and Archives)

1. BEAUFORT HYDROCARBON INFORMATION ACQUISITION AND PROCESSING (G.2) (1984/85-1987/88); In-house

   Objectives: (1) To acquire material on hydrocarbon development in the north, particularly the Beaufort Sea area, as it pertains to Yukon. (2) To provide access to the information acuiqred on hydrocarbon development in the north, particularly the Beaufort Sea area, as it pertains to Yukon.

   Contact: Sally Bremner, Beaufort Sea Librarian, Libraries and Archives Branch, Department of Education, Box 2703, Whitehorse, Yukon, Y1A 2C6, (403) 667-5859.

Department of Economic Development: Mines and Small Business

2. DATA DEVELOPMENT IN RELATION TO BEAUFORT HYDROCARBON DEVELOPMENT REQUIREMENTS (G.3) (1984/85-1987/88); In-house

   Objective: To develop systematically the statistical data base required, inter alia, to monitor and document hydrocarbon development in Yukon.

Contact: M.L. Marshal, Contract Unit, Bureau of Statistics, Executive Council Office, Box 2703, Whitehorse, Yukon, Y1A 2C6, (403) 667-3044.

Subprojects:

G.3-1 Statistical Profile (1984/85 - 1987/88)

G.3-2 Spatial and Temporal Survey (1984/85 - 1987/88)

G.3-4 Statistical Data Dissemination/Summary Statistics (1984/85 - 1987/88)

G.3-6 Revenue Canada Individual Income Data (1984/85 - 1987/88)

G.3-7 Energy Statistics (1985/86 - 1987/88)

G.3-8 Justice and Crime Statistics (1985/86 - 1987/88)

G.3-9 Labour Force Statistics (1985/86 - 1987/88)

G.3-10 Social Assistance Statistics (1986/87 - 1987/88)

G.3-11 Alcohol Statistics (1985/86 - 1987/88)

G.3-12 Health Statistics (1986/87 - 1987/88)

Department of Renewable Resources

For further information contact: Brian Pelchat, Senior Wildlife Biologist (Big Game), Dept. of Renewable Resources, Box 2703, Whitehorse, Yukon, Y1A 2C6, (403) 667-5720.

3. **RAPTOR MANAGEMENT PLAN FOR THE YUKON NORTH SLOPE** (G.17) (1984/85 - 1987/88); In-house

Objective: (1) To monitor productivity of sample breeders. (2) To carry out management experiments - harvest, reintroduction. (3) To measure productivity Herschel - Rough-legged hawks. (4) To code, enter all data, analysis update. (5) To draft final management plan.

Department of Tourism

4. **NORTH COAST HERITAGE RESEARCH AND PROTECTION** (G.18) (1984/85-1988/89); In-house

Objective: (1) To complete excavations of Houses 3 and 4 at the Pauline Cove (NjVi-3) site on Herschel Island, continued monitoring and survey work on Herschel Island and the Yukon mainland coast east

of North Yukon National Park, installation of the Gustav Wiik (1906) grave headboard replica at King Point, and text excavation of the Avadlek Spit site (NjVj-1) on Herschel Island. (2) To continue updating and enhancing the heritage resource data base for the North Coast and assembly of historical archival photos and documents. (3) To continue the development of heritage resources protection policies and mechanisms including the inputting of information and policy recommendations into the following processes: (a) Federal Archaeology Legislation and Policy - in the process of development by the Department of Communications in conjunction with the Department of the Environment and the Department of Indian Affairs and Northern Development. (b) Yukon Heritage Legislation (including archaeology) - in the process of development by the Heritage Branch, Department of Tourism, Government of the Yukon. (c) Herschel Island Territorial Park master planning and development - being carried out by the Department of Renewable Resources.

Contact: B. Dale Perry, Director, Heritage Branch, Dept. of Tourism, Box 2703, Whitehorse, Yukon, Y1A 2C6, (403) 667-5983.

GOVERNMENT OF THE NORTHWEST TERRITORIES

Energy, Mines and Resources Secretariat

1. SOCIO-ECONOMIC MONITORING SYSTEM, NORTHERN HYDROCARBON DEVELOPMENT (H.8) (1984/85 - 1987/88); Contract

   Objectives: (1) To implement a monitoring system on a Pilot Project basis in order to determine the usefulness of a Beaufort Project database. (2) To make existing GNWT, Federal, community and industry data more useful and accessible. (3) To make recommendations on how best to organize, centralize and systematize data systems for use in socio-economic monitoring for the Beaufort-Mackenzie Delta area.

   Contact: Gay Kennedy, Project Assessment Coordinator, Energy, Mines and Resources Secretariat, Box 1320, Yellowknife, NWT, X1A 2L9, (403) 873-7735.

Department of Health

For further information, contact: Dr. Luis Barreto, Territorial Epidemiologist, Department of Health, GNWT, Box 1320, Yellowknife, NWT, X1A 2L9, (403) 920-6281.

2. **COMMUNITY HEALTH STATUS PROFILES AND ASSESSMENT AND PLANNING FOR HEALTH CARE AND ALCOHOL TREATMENT WITHIN HYDROCARBON DEVELOPMENT IMPACT AREA OF INUVIK (H.24) (1987/88); Contract**

Objectives: (1) To continue to utilize community health profiles to assess present and projected health care needs within the impact zone. (2) To utilize community input to evaluate local health concerns within the context of cultural requirements. (3) To identify solutions to the problems of sexually transmitted diseases, alcohol and drug abuse, morbidity and mortality, mental health, and selected maternal and child health issues as envisaged by the people.

Department of Municipal and Community Affairs

3. **FUNDS FOR TUKTOYAKTUK AND INUVIK COUNCILS TO IDENTIFY IMPACTS AND PLAN FOR DEVELOPMENT (H.2) (1984/85-1990/91); In-house (municipalities) and Contract**

Objective: To permit the Hamlet of Tuktoyaktuk and the Town of Inuvik to prepare for and deal with the municipal impacts resulting from Beaufort hydrocarbon development by providing their Councils with the resources and expertise required to assess hydrocarbon development proposals, identify and plan for required additional infrastructure, modify community development plans, and prepare management strategies to deal with impacts.

H.2-1 Funding for Inuvik Council to Identify Impacts and Plan for Development

H.2-2 Funding for Tuktoyaktuk Council to Identify Impacts and Plan for Development.

Contact: David Fisher, Resource Development Advisor, Department of Municipal and Community Affairs, Bag Service No. 1, Inuvik, NWT, X0E 0T0, (403) 979-7192.

4. **MUNICIPAL ORGANIZATION, SERVICE AND INFRASTRUCTURE IMPACT PLANNING (H.6) (1984/85-1990/91); In-house**

Objective: (1) Information Sessions for Community Councils and Staff. (2) Community Operations Database Installation and Testing. (3) Community Operations Data Collection (on-going, all communities). (4) Data Base Test Report Generation: Community Profile, Tuktoyaktuk. (5) Recommendations re: Integration of Database use and maintenance within existing Department programs and procedures.

Contact: David Fisher, Resource Development Advisor, Department of Municipal and Community Affairs, Inuvik Region, Government of the N.W.T., Bag Service #1, Inuvik, N.W.T. X0E 0T0 (403) 979-7192.

Department of Renewable Resources

5. **RENEWABLE RESOURCES HYDROCARBON DEVELOPMENT IMPACT AND PLANNING GUIDELINES** (H.4) (1984/85 - 1987/88); Contract

Objectives: (1) To identify and recommend management guidelines for areas requiring special protection from the perspective of local, territorial, federal and international interest. (2) To follow-up on recommendations related to research and monitoring as identified in the BEMP exercise. (3) To develop guidelines to protect the uses of renewable resources in the face of hydrocarbon activities. (4) To develop guidelines for evaluating and improving the effectiveness of mitigation measures related to northern hydrocarbon development.

Subprojects:

H.4-3 Environmental Monitoring Program (1985/86 - 1987/88)

H.4-4 Review and Comparative Analysis of Development Impacts on Renewable Resource Economy and Case Studies in the N.W.T. (1985/86 - 1987/88)

H.4-5 Guidelines for Protection of Renewable Resource Options and Mitigation of Hydrocarbon Development Impacts (1986/87 - 1987/88)

Contac: Ron Livingston, Director, Policy and Planning, Department of Renewable Resources, Box 1320, Yellowknife, NWT, X1A 2L9, (403) 920-8046.

6. **EFFECTS OF HYDROCARBON DEVELOPMENT ON HARVESTING OF WILDLIFE** (H.12) (1984/85 - 1988/91); In-house and contract

Objectives: (1) To establish the organizational framework to collect harvest data from hunters and trappers of Mackenzie Valley communities. (2) To provide greater involvment of users in gathering data and reaching wildlife management decisions.

Contact: Dyan Grant-Francis, Wildlife Harvest Analyst, Department of Renewable Resources, GNWT, Yellowknife, NWT, X1A 2L9 (403) 873-7766.

7. **WILDLIFE MANAGEMENT PLANS FOR SPECIES AFFECTED BY HYDROCARBON DEVELOPMENT** (H.15) (1985/86 - 1988/89); In-house

Objectives: (1) To develop a process for public consultation of management plans within the development zone. (2) To produce drafts of all proposed management plans. (3) To begin consultation with hunters and trappers in Beaufort Sea and Mackenzie Valley communities on draft management plans.

Contact: Leslie Treseder, Wildlife Management Biologist, Department of Renewable Resources, Box 1320, Yellowknife, NWT, X1A 2L9, (403) 920-8675.

Subprojects:

H.15-3 Banks Island Peary Caribou Management Plan (1985/86 - 1987/88)

H.15-5 Richards Island and Tuktoyaktuk Grizzly Bear Management Plan (1985/86 - 1987/88)

H.15-7 Mackenzie Delta and Valley Moose Management Plan (1985/86 - 1987/88)

H.15-8 Mackenzie Delta and Valley Furbearer Management Plan (1985/86 - 1987/88)

8. RENEWABLE RESOURCES BASELINE INFORMATION FOR WILDLIFE POPULATIONS AFFECTED BY HYDROCARBON DEVELOPMENT (H.16) (1985/86 - 1988/89); In-house; contract

Objective: (1) To test technique to obtain a photo census of postcalving aggregations of Bluenose caribou herd. (2) To document extent of calving ground and winter range of Bluenose caribou herd by monitoring movements of radio-collared caribou. (3) To test methods for determining spring recruitment rate of Bluenose caribou. (4) To evaluate boundaries of muskox management zone on Banks Island. (5) To collect and compare recruitment data for muskox on Banks Island. (6) To investigate proportion of muskox on Banks Island affected by disease. (7) To census muskox population near Paulatuk. (8) To determine population estimate of grizzly bears on Richards Island. (9) To determine population estimate of polar bears in Beaufort Sea region. (10) To conduct an inventory of raptors in the MacKenzie Valley. (11) To monitor nesting success of raptors along the Norman Wells pipeline.

Contact: Kevin Lloyd, Director, Wildlife Management, Department of Renewable Resources, Box 1320, Yellowknife, NWT, X1A 2L9, (403) 873-7411.

Subprojects:

H.16-1 Population Dynamics of Bluenose Caribou Herd (1985/86 - 1988/89)

H.16-2 Census of Muskox and Peary Caribou Populations Harvested by Residents within the Development Zone (1985/86 - 1987/88)

H.16-3 Impact of Development Activities on Grizzly Bears on Richards Island and Tuktoyaktuk Peninsula (1985/86 - 1987/88)

H.16-4 Comparison of Population Size, Recruitment and Movements of Beaufort Sea Polar Bears with 1977 Data and On-going Exploration Activities (1985/86 - 1988/89)

H.16-5 Raptor Nest and Habitat Inventory within the Development Zone (1985/86 - 1988/89)

9. ENVIRONMENTAL PROTECTION AND MONITORING OF HYDROCARBON DEVELOPMENT AREAS (H.17) (1985/86 - 1987/88); In-house

Objectives: (1) To investigae water quality near Mackenzie Delta communities. (2) To develop a program for annual inspection of bulk petroleum and chemical storage sites within Beaufort Sea communities in relation to the Environmental Protection Ordinance.

Contact: Lorne James, Pollution Control Engineer, Department of Renewable Resources, Box 1320, Yellowknife, NWT, X1A 2L9, (403) 873-7654.

Subprojects:

H.17.4 Monitoring of Water Quality (1986/87-1987/88)

Department of Social Services

10. BEAUFORT DELTA SOCIAL IMPACT BASELINE DATA STUDY (H.3) (1984/85 - 1990/91); In-house and contract

Objectives: (1) To prepare for the impact of hydrocarbon development in the communities of Inuvik, Aklavik, Arctic Red River, Fort McPherson, Tuktoyaktuk, Sachs Harbour, Paulatuk, Holman Island, Coppermine. (2) To determine the changing social needs of the communities in the Beaufort/Delta area. (3) To assess the Department of Social Services' ability to respond to these changing needs; (4) To assist the Department in its development of appropriate, effective program strategies to deal with the social needs of the Beaufort/Delta communities. (5) To develop a draft implementation plan to meet the identified needs. (6) To build and strengthen community resources to enable each community to identify and respond to these changing social issues.

Contact: Jenette Frost, NOGAP Project Manager, Department of Social Services, Bag Service No. 1, Inuvik, NWT, X0E 0T0, (403) 979-7291.

Subprojects:

H.3-1 Baseline Data Study (1984/85 - 1987/88)

H.3-4 Substance Abuse Pilot Project (1986/87 - 1987/88)

H.3-6 Resource Inventory of Social Servies (1987/88)

Department of Justice

11. **FEASIBILITY STUDY FOR COMPUTERIZATION OF VITAL STATISTICS FOR COMMUNITIES AFFECTED BY FLUCTUATION IN DEVELOPMENT OF HYDROCARBON ACTIVITY** (H.38) 1986/87 - 1987/88); contract

Objectives: (1) A chargeback Agreement with G.N.W.T. Systems and Computer Services Division to carry on the work undertaken in 1986/87; i.e. to provide resources for the purpose of systems analysis, design, programming and, eventually (1988-89), implementation of the program. (2) G.N.W.T. will undertake the work of extracting the needed information from the original registrtion forms, and transposing that information to computer ready data entry forms. A university student will be hired for this aspect of the work.

Contact: Shirley Stevenson, Chief, Consumer and Corporate Affairs, Department of Justice, Government of the Northwest Territories, Yellowknife, N.W.T. X1A 2L9 (403) 920-8055.

Department of Economic Development and Tourism

12. **SPECIAL PROJECTS COORDINATOR OIL AND GAS** (H.40) (1987/88 - 1989/90) In-house

Objectives: (1) Implementation of Strategic Plan. (2) Industry/ Government Workshops on managment, opportunities and marketing. (3) Ongoing implementation of Strategic Plan. (4) Industry Trade Show.

Contact: Maureen Jensen-Karst, Policy and Program Evaluation Officer, Department of Economic Development and Tourism, Government of the Northwest Territories, Yellowknife, N.W.T. (403) 873-7093.